



## Portable Medical System

In the photo above, a paramedic is administering emergency aid to a heart attack victim, using a Portable Medical Status and Treatment System (PMSTS) that incorporates NASA astronaut-monitoring, electronic circuitry and microminiaturization technologies. Developed by Narco Scientific Bio-Systems Division, Houston, Texas, the system is designed for use in remote areas where considerable time may elapse before a patient can be transported to a hospital. First units were delivered to the Department of Transportation last year and tested in two types of medical emergency environments: one in a rural Pennsylvania community and another aboard a U.S. Coast Guard rescue helicopter operating along Florida's Gulf Coast.

Key elements of the battery-powered PMSTS include a vital signs monitor and a defibrillator. The microprocessor-based monitor, which can operate for six hours, features a five-inch scope, a data recorder and membrane-switch controls. The scope provides a display of pulse rate, temperature, blood pressure and respiration rate, along with status information, including heart rate and respiration rate alarms. The defibrillator delivers an electrical shock to restore rhythmic heartbeat after fibrillation, an erratic heart action in which the organ loses its ability to pump blood; in the photo, the attendant is applying defibrillator "paddles" which contain controls allowing selection of six different energy levels. The system includes a 10-channel radio with two-way voice communication and the capability to transmit vital signs to a distantly-located physician, who can perform diagnosis and relay treatment instructions to the attendant at the scene of the emergency.

Narco has also developed a companion system, called

Porta-Fib III (below), designed for use in a hospital environment. In this unit, the radio and some of the PMSTS monitoring features which would not be required in a hospital have been eliminated, and technologies for the defibrillating and display functions have been refined and expanded. Porta-Fib III is expected to be introduced this year.

The PMSTS and Porta-Fib III are offshoots of an earlier NASA project known as the Physician's Black Bag, a portable monitoring/treatment unit developed for Johnson Space Center by Telecare, Inc., a company later acquired by Narco. In developing PMSTS and Porta-Fib III, Narco incorporated some of the Black Bag technology and further developed the system to include additional functions, displays and controls.

